

Docket No.: K0502.70037US00  
(PATENT)

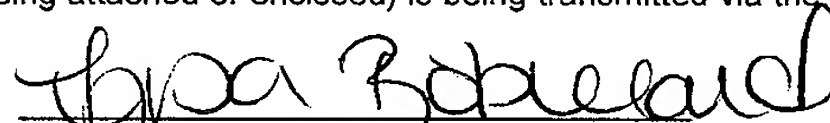
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Basil Karanikos et al.  
Serial No.: 10/658,925  
Confirmation No.: 3129  
Filed: September 10, 2003  
For: BEVERAGE FILTER CARTRIDGE  
Examiner: J. Drodge  
Art Unit: 1723

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Dated: June 10, 2008

  
Lisa A. Robillard

**APPEAL BRIEF**

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This Brief is submitted in furtherance of the Notice of Appeal filed in connection with the above-referenced application on April 11, 2008.

Claims 1-4, 7, 12-14, 17 and 22-44 are rejected under 35 U.S.C. §103(a) over U.S. Patent 5,325,765 to Sylvan et al. (Sylvan) in view of U.S. Patent Publication 2002/0185010 to Spiteri (Spiteri). Claims 3, 5, 6, 9-11, 15, 16, 19-21 and 32 are rejected under 35 U.S.C. §103(a) over Sylvan in view of Spiteri and further in view of U.S. Patent 3,971,305 to Daswick (Daswick). Claims 8 and 18 are rejected under 35 U.S.C. §103(a) over Sylvan in view of Spiteri and further in view of U.S. Patent 3,389,650 to Michielsen (Michielsen).<sup>1</sup> These rejections should be reversed, as (1) the claims patentably distinguish over any combination of the asserted references, and (2) one

<sup>1</sup> Items 2 and 3 of the Office Action also refer to "Lesser" and "Tanner", both prior applied references. Since no formal rejection of claims is made in view of these references (and prior rejections based on them have been withdrawn), Applicant assumes these indications to be typographical errors.

skilled in the art would have had no reason at the time of the invention to modify the cartridge of Sylvan as asserted in the claim rejections.

As required by 37 C.F.R. §41.37 and M.P.E.P. §1205, this brief contains items under the following headings:

- I. Real Party In Interest (37 CFR §41.37(c)(1)(i))
- II. Related Appeals Interferences, and Judicial Proceedings (37 CFR §41.37(c)(1)(ii))
- III. Status of Claims (37 CFR §41.37(c)(1)(iii))
- IV. Status of Amendments (37 CFR §41.37(c)(1)(iv))
- V. Summary of Claimed Subject Matter (37 CFR §41.37(c)(1)(v))
- VI. Grounds of Rejection to be Reviewed on Appeal (37 CFR §41.37(c)(1)(vi))
- VII. Argument (37 CFR §41.37(c)(1)(vii))

APPENDIX A – Claims

APPENDIX B – Evidence

APPENDIX C – Related Proceedings

## **I. REAL PARTY IN INTEREST (37 CFR §41.37(c)(1)(i))**

The real party in interest for this appeal is the assignee, Keurig, Incorporated, a Delaware corporation having a place of business at 55 Walkers Brook Drive, Reading MA 01867, which is a subsidiary of Green Mountain Coffee Roasters, Inc., a Delaware corporation having a place of business at 33 Coffee Lane, Waterbury, VT 05676.

## **II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS (37 CFR §41.37(c)(1)(ii))**

There are no other appeals, interferences, or judicial proceedings known to Appellant which will directly affect, or be directly affected by, or have a bearing on, the Board's decision in this appeal.

**III. STATUS OF CLAIMS (37 CFR §41.37(c)(1)(iii))**

There are 44 claims currently pending in this application (i.e., claims 1-44). A listing of the currently pending claims is provided in Appendix A.

Of the currently pending claims, three (3) are independent (i.e., claims 1, 12 and 44), and forty-one (41) are dependent. Each of the pending claims stands rejected and is appealed.

The status of the claims is summarized as follows:

1. Canceled: none.
2. Withdrawn from consideration: none.
3. Pending: claims 1-44.
4. Allowed: none.
5. Rejected and appealed: claims 1-44.

**IV. STATUS OF AMENDMENTS (37 CFR §41.37(c)(1)(iv))**

No claim amendments were filed subsequent to the Final Office Action mailed January 30, 2008.

**V. SUMMARY OF CLAIMED SUBJECT MATTER (37 CFR §41.37(c)(1)(v))**

This application builds upon, and is an improvement over, beverage cartridge arrangements disclosed in U.S. Patents 5,325,765 and 5,840,189, one of which – ‘the ‘765 patent to Sylvan - is applied in the rejection of claims. (Page 2 of the application.) These patents relate to a beverage cartridge in which hot, pressurized water is injected into the cartridge via a penetrating needle to form the beverage. (See col. 4, lines 21-27 of the ‘765 patent to Sylvan.) This application indicates that drawbacks of the prior cartridges are overcome by providing increased storage capacity for the beverage medium, optimized saturation of the medium, and a significant increase in total dissolved solids (TDS) in the resulting beverage. (Page 3, lines 1-4.)

Aspects of the claimed invention relate to a beverage filter cartridge of the type used to make a beverage by piercing the cartridge, e.g., at the top, to introduce water into the cartridge that contacts a beverage medium (such as coffee), and piercing the cartridge, e.g., at the bottom, to allow

the outflow of beverage. (Page 3, lines 6-21; page 6, lines 7-15; and Fig. 8 of the application.) The cartridge includes a filter element attached at the inner wall of the cartridge container that serves to separate first and second chambers in the cartridge. (Page 5, lines 6-17.) Ground coffee or other beverage medium is stored in the first chamber such that, when water is introduced into the first chamber by a piercing inlet probe, the water infuses with the coffee and passes through the filter element to the second chamber. (Page 5, line 22 to page 6, line 17.) The filtered beverage then flows out of the cartridge from the second chamber into a probe that has pierced the container. (Page 6, lines 18-22.) The filter element includes pleats or flutes (or other corrugations) in the sidewall, e.g., to form exit channels for beverage passing through the filter sidewall and flowing into the second chamber. (Page 6, line 20 to page 7, line 1.)

Specifically, independent claim 1 recites a beverage filter cartridge comprising a container having a container bottom and a container side wall extending upwardly from the container bottom to a top opening. A filter element, having a filter bottom and a filter side wall extending upwardly from the filter bottom, is received in the container and directly joined at a peripheral juncture to an interior of the container side wall. The interior of the container is thus subdivided by the filter element into a first chamber accessible via the top opening, and a second chamber. Pleats or flutes in the filter side wall form exit channels leading to the second chamber, and the exit channels are located between the container side wall and the filter side wall. A beverage medium is received in the first chamber via the top opening, and a cover closes the top opening. The cover is pierceable to admit liquid into the first chamber for contact with the beverage medium to produce a beverage, the filter element is permeable to accommodate the flow therethrough of the beverage for delivery via the exit channels to the second chamber, and the container bottom is pierceable to accommodate an outflow of the beverage from the cartridge.

Independent claim 12 recites a beverage filter cartridge comprising a container having a side wall and a bottom, and a filter element having a side wall and a bottom. The filter element is arranged to subdivide the interior of the container into a first chamber inside the filter element and a second chamber located outside the filter element. The filter element is directly joined to an interior of the container side wall at a peripheral juncture, and the filter sidewall has corrugations, has at

least a portion that is permeable, and is arranged so that at least a portion of the filter side wall is spaced inwardly from and out of contact with the container side wall. A cover encloses at least a portion of the first chamber.

Independent claim 44 recites a beverage filter cartridge comprising a container having a side wall and a bottom, and a filter element having a side wall and a bottom. The filter element is arranged to subdivide the interior of the container into a first chamber inside the filter element and a second chamber located outside the filter element. The filter element is directly joined to an interior of the container side wall at a peripheral juncture, and the filter sidewall has corrugations and is arranged so that at least a portion of the filter side wall is spaced inwardly from and out of contact with the container side wall. A cover encloses at least a portion of the first chamber.

There are no means-plus-function elements under 35 USC §112, sixth paragraph, included in the independent claims or dependent claims argued separately below.

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL (37 CFR §41.37(c)(1)(vi))**

The grounds of rejection to be reviewed on appeal is whether claims 1-44 have been properly found obvious under 35 U.S.C. §103(a) over Sylvan in view of Spiteri, over Sylvan in view of Spiteri and further in view of Daswick, and/or over Sylvan in view of Spiteri and further in view of Michelsen.

## **VII. ARGUMENT (37 CFR §41.37(c)(1)(vii))**

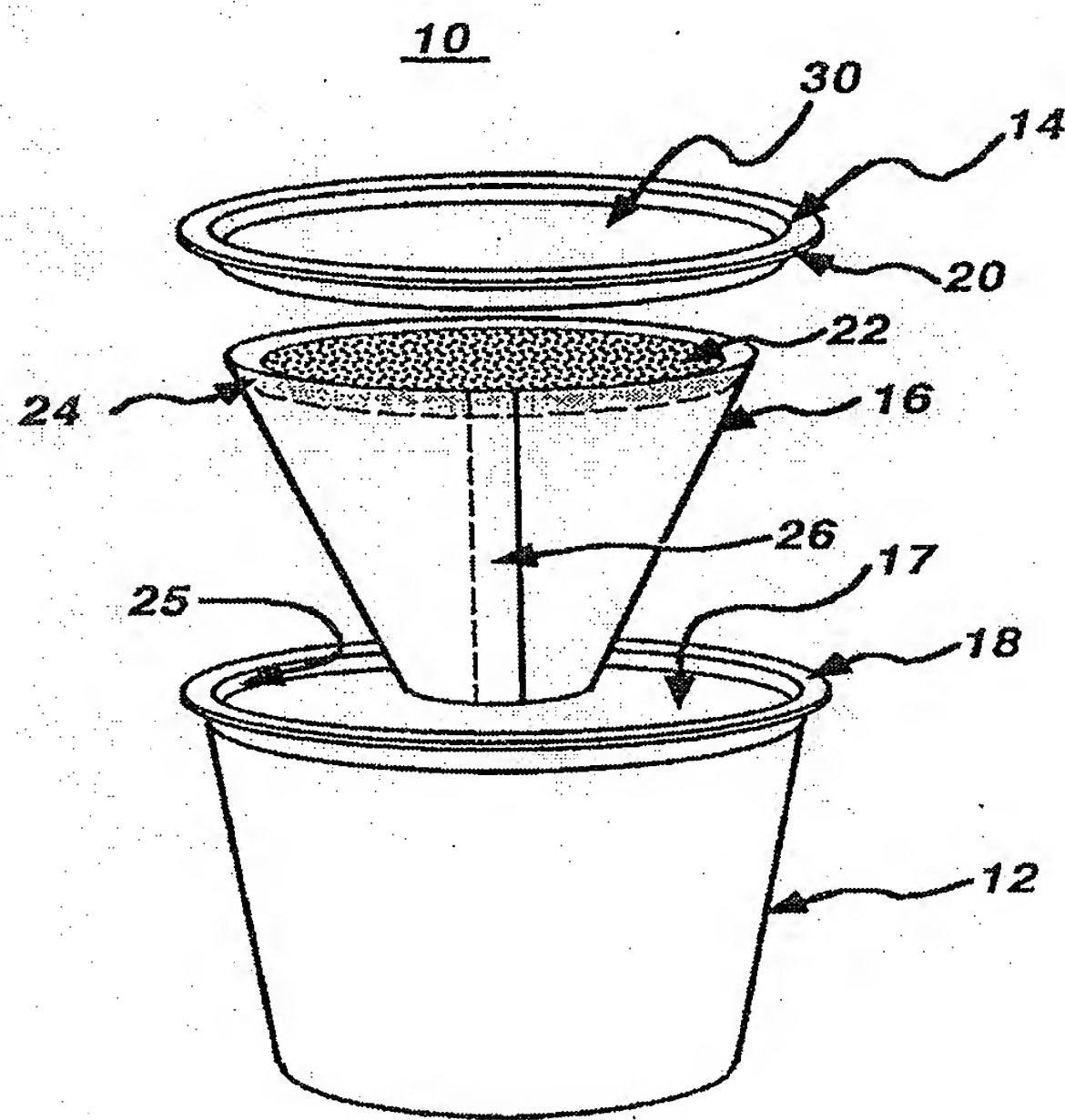
The Final Office Action fails to set forth a sustainable case of obviousness with respect to claims 1-44. One skilled in the art would have had no reason at the time of the invention to modify the cartridge of Sylvan as asserted in the Office Action according to the teachings of Spiteri, Daswick and/or Michielsen.

### **A. Brief Overview Of Applied References**

#### **1. Sylvan**

Sylvan discloses a beverage filter cartridge having an impermeable piercable base 12, an

impermeable piercable cover 14 joined to the top of the base and a permeable filter element 16 that is sealingly engaged at its edge 24 with an internal surface 25 of the base 12. (See Fig. 1 of Sylvan reproduced below and col. 2, line 63 to col. 3, line 58.) Thus, the filter element 16 divides the interior space of the base 12 into a first chamber inside and above the filter element 16 where coffee 22 is located, and a second chamber below the filter element 16 where filtered coffee beverage is collected and flows from the cartridge during brewing. (Col. 3, line 66 to col. 4, line 6.)

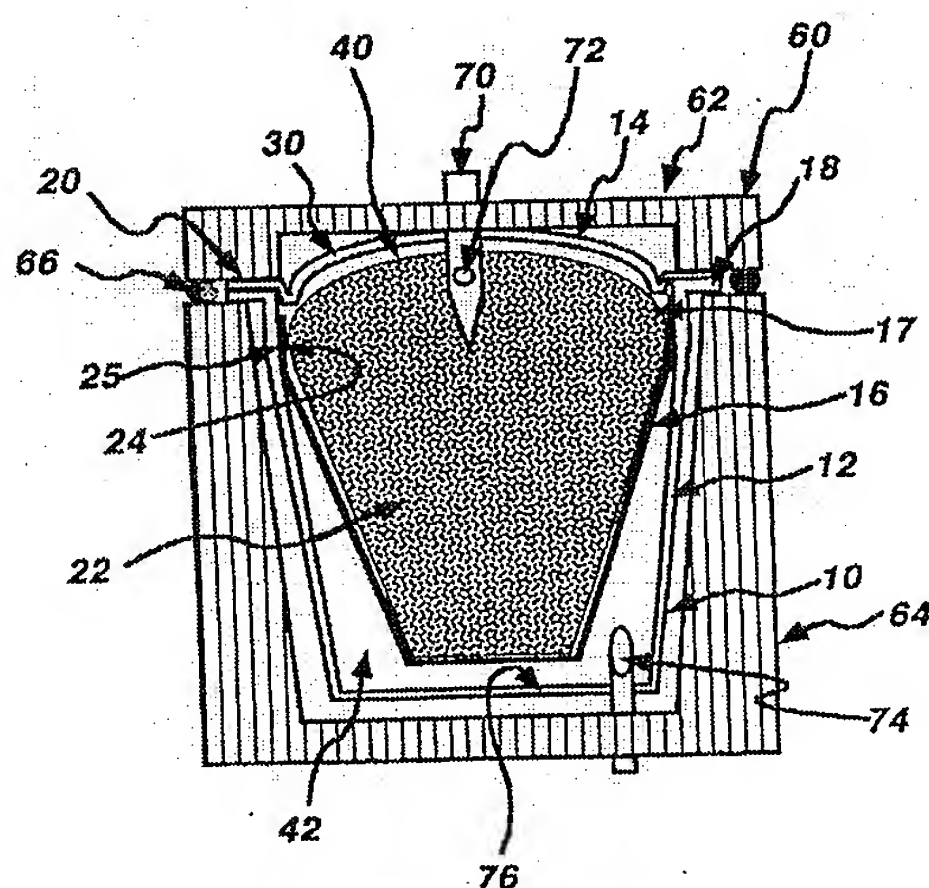


**FIG. 1**

As shown in Fig. 4 of Sylvan reproduced below, the cartridge is made to function with an automatic coffee brewing machine in which the cartridge is received in and gripped by a housing



60. A needle 70 penetrates the cover 14 at the top of the cartridge to introduce pressurized hot water into the first chamber 40, i.e., so the injected, pressurized water infuses with coffee 22 in the cartridge. (Col. 4, lines 16-24.) A second needle 74 penetrates the bottom of the base 12 and receives outflow of coffee beverage that results from injected water infusing with the coffee 22 and passing through the filter element 16 to the second chamber 42. (Col. 4, lines 24-27.)



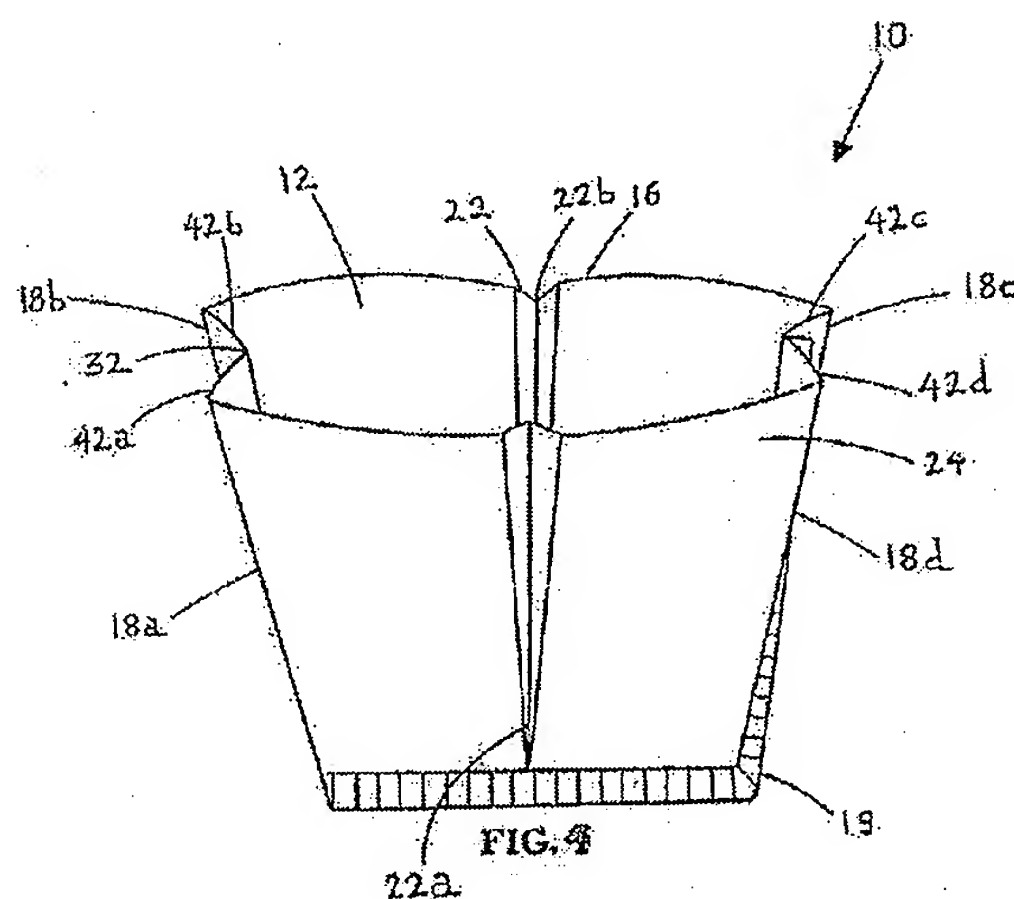
**FIG. 4**

Sylvan describes in the “Field of Invention” section that “the invention” relates to a beverage filter cartridge with a self-supporting wettable filter that provides an enlarged filter outflow chamber. (Col. 1, lines 6-10) Also, in the “Background of Invention” section, Sylvan describes one prior filter receptacle design in which the filter sags when wetted and conforms with a support member in the receptacle, which blocks output of the filter. Sylvan describes that if this type of design were used in an application where water is injected under pressure, low flow rates would result. (Col. 1, lines 30-38.) In view of these statements, Sylvan states that “[i]t is a further object of this invention to provide such an improved beverage filter cartridge whose filter is self supporting and does not collapse against the container even when wetted,” and that an improved

beverage filter cartridge is provided “which even when the filter is wetted maintains a substantial volume between the filter and cartridge.” (Col. 1, lines 50-53 and col. 2, lines 3-7) Sylvan goes on to describe that the filter element 16 may have one of three different shapes, a cone, a truncated cone or a triangular prism, and that the filter element is made so as to be totally self-supporting so that it will not collapse or sag against the inner walls of the base even when wetted. (Col. 3, lines 10-15.)

## 2. Spiteri

Spiteri discloses a filtration device, particularly a filter made of porous paper, capable of home brewing an infusion beverage, e.g., using a drip-type brewing process. (Paragraph 0001.) As shown in Fig. 4 reproduced below, Spiteri discloses that the filter 10 has arcuate edges 16 forming the opening 12 in which coffee grounds or other infusion material is placed, and sidewalls 24. The sidewalls 24 include folds 18a-18d and pleats 22a and 22b which are formed by folding the sidewalls 24. (Paragraph 0025-0026.) The filter is configured for use in a conventional coffee brewer, such as an electric drip brewer, whereby the filter is expanded from a flat, folded storage configuration and placed in a brew basket of the brewer to receive coffee grounds and water dripped into the filter. (Paragraphs 0010, 0011 and 0021.)



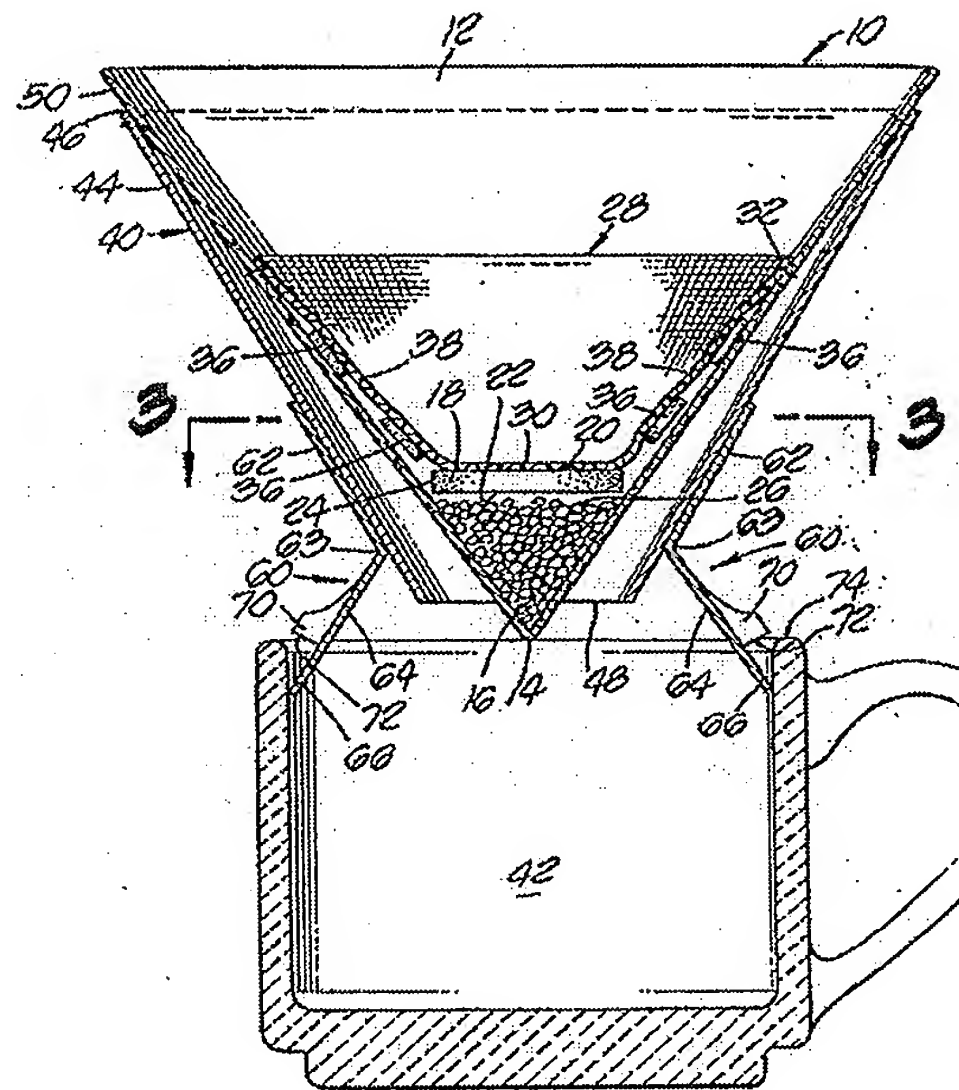


Spiteri describes that an object of the invention is to provide a means to prevent a filter from collapsing in its receptacle and allowing unwanted product (beverage) to pass through unfiltered to the user's cup, and that another object is to provide a number of pleats to the filter paper that are sized and shaped to self support the wet filter walls in its desired upright position. (Paragraphs 0003-0004) Spiteri then describes that the invention provides a foldable filter that maintains its flexibility, yet has rigid properties due to the folds and pleats to withstand sagging when wet. (Paragraph 0009) Thus, Spiteri discloses that the filter has the ability to stand in a drip-brewer basket such that the upstanding sidewalls will not sag or fold inwardly when the filter is wetted during brewing, thereby preventing brew water from bypassing the filter in spaces between the filter and the brew basket. However, Spiteri is clear that the filter is flexible and expandable to maintain the same volumetric dimensions as the coffee maker brew basket when unfolded. (Paragraphs 0009 and 0011.)

### 3. Daswick

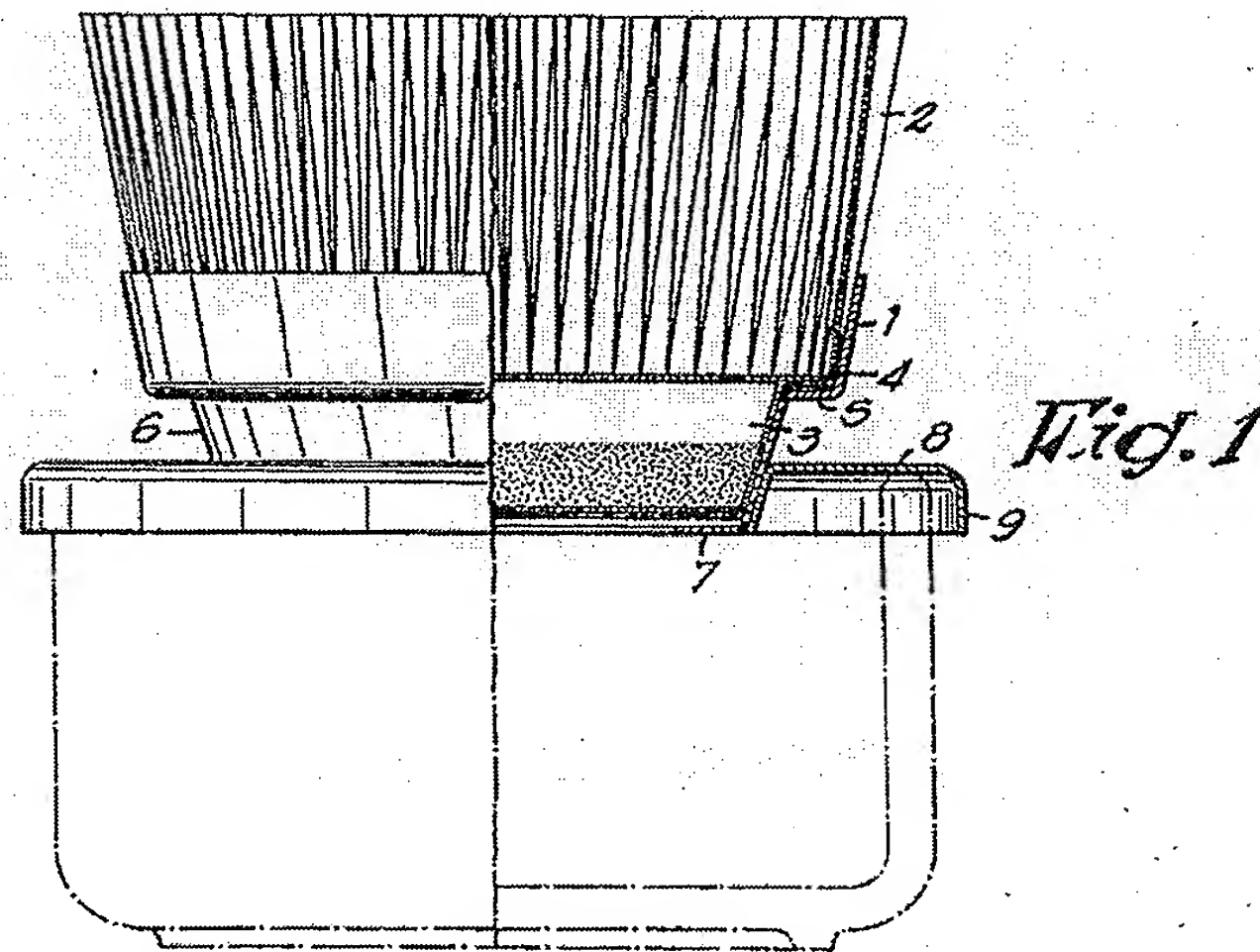
Daswick, similar to Spiteri, discloses a disposable drip-type filter element for making coffee or other infused beverages. As shown in Fig. 2 below, the filter 10 is made of a permeable filter paper and has a conical shape that tapers to a bottom point 14. (Col. 2, lines 42-49.) Coffee grounds 16 are received in the bottom of the filter 10, and positioned over the grounds 16 are a mesh or web 28 to keep the grounds in the filter 10 and a water diverting element 18, e.g., a thin disc made of non-porous buoyant material that is secured to the mesh 28. (Col. 2, line 60 to col. 3, line 16.) The filter 10 is received in a support 40 made of waterproof paper or cardboard. (Col. 3, lines 49-55.) The frusto-conical member 44 of the support 40 in Fig. 2 has a conical angle that is smaller than the conical angle of the filter 10, and so the filter 10 is spaced from the support 40, allowing coffee to flow freely from the filter and down to the point 14. (Col. 3, lines 55-68.) Daswick discloses that the member 44 may have a same conical angle as the filter 10, but have portions spaced outwardly from the filter 10 to allow coffee to flow freely down the outside of the filter 10. The outwardly spaced portions may be provided by fluting the filter 10 or the member 44, or by attaching spacer elements to the inside of the member 44 or outside of the filter 10. (Col. 4,

lines 1-8.)



#### 4. Michielsen

Michielsen also discloses a drip-type filter element for making coffee. As shown in Fig. 1 below, the device includes a pleated vessel wall 2, connected to a non-pleated part 4, which is connected to an envelope that contains ground coffee. (Col. 2, lines 14-29.)



B. Reasons for Rejection in the Office Action

The Final Office Action asserts that it would have been obvious to modify the Sylvan cartridge (which is operated at a pressure during brewing that is higher than ambient air pressure) by using a pleated or fluted filter, as taught by Spiteri (which used for gravity-driven drip-type brewing), to augment the self-supporting aspect of the filter in the pressure-type cartridge. The Office Action also asserts that it would have been expedient to manufacture the filter element of Sylvan with the pleats/flutes of Spiteri to facilitate handling, packing/packaging, cost-effective production, and provide stiffness to ensure sufficient rigidity to avoid collapse or sagging of the filter when wetted. (See the paragraph bridging pages 3 and 4 of the Office Action.)

Regarding the reason to make such a modification, the Office Action indicates that a primary concern of Sylvan was to avoid sagging of a coffee filter when wetted and full of grounds, e.g., because sagging of the filter against the support member walls of the brew basket would largely block the filtration flow and allow only the bottom of the filter member to be used for filtration flow. The Office Action states that Spiteri also addresses the issue of filter sagging and the

desirability of preventing the walls of a coffee filter from sagging when wetted. (See the first full paragraph on page 4 of the Office Action.) The Office Action concludes that avoidance of sagging would increase the effective filtering area and area for filtration flow of coffee.

In responding to earlier arguments made by the Applicant, pages 7 and 8 of the Office Action state that although the filter of Spiteri is understood to contact the sidewalls of the brew basket, such contacting is understood to mean that only the apexes or splines of the pleats/flutes of the filter contact the sidewalls, with the remainder of the surface area of the filter remaining spaced from the sidewalls. This portion of the Office Action also indicates that because the filters of Sylvan and Spiteri are necessarily manufactured, handled and packaged separately, by separate manufacturing steps, from those of the brewing basket and other portions of the arrangements, discrete handling and packaging steps are required for the filters alone, and that manufacturers are motivated to find expedients for cutting costs for manufacturing the filters. The Office Action concludes by stating that Sylvan and Spiteri both relate to coffee filters used in a coffee-brewing machine, and that the skilled artisan would have been expected to investigate other forms of automatic brewing assemblies when seeking to solve problems concerned with filtering coffee-producing water.

C. Rejection of Claims Over Sylvan In View of Spiteri

Claims 1-4, 7, 12-14, 17 and 22-44 Are Not Obvious

When considering the obviousness of a claim, the scope and content of the prior art is determined, differences between the prior art and the claim(s) at issue are ascertained, and the level of ordinary skill in the pertinent art resolved. KSR International Co. v. Teleflex, Inc., 550 US \_\_\_, 127 S. Ct. 1727 (2007) As stated by the Supreme Court, “the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results – a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.” Id. However, “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” Id. Although “any

need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed,” the complete absence of a reason for combining elements supports the non-obviousness of a claim. Id. Also, a person of ordinary skill would not necessarily have good reason to pursue known options within his or her technical grasp unless there is “a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions.” Id. Also, consideration of the question of obviousness often must take place in light of other factors, such as, for example, commercial success of the invention, the solving of a long felt need, failure of others, and other so-called objective indicators of non-obviousness. Id.

1. There Was No Known Function For a Fluted/Pleated Filter In a Pressure-Type Beverage Cartridge

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The claimed arrangements do not recite a simple combination of elements according to known methods that yields predictable results, as described, for example, in Section 10 of the attached Declaration Under Rule 132 filed Nov. 29, 2007 (Declaration II). In short, the use of a fluted or pleated filter in a Sylvan cartridge does not involve the combination of known elements according to known methods so as to yield predictable results. The results in using a fluted or pleated filter in a Sylvan cartridge would not have been predictable to one of ordinary skill in the art, mainly because a fluted or pleated filter had no known functional use in a pressurized cartridge brewing arrangement like that of Sylvan. To the contrary, Applicant has provided declaration evidence that one of ordinary skill in the art would have expected a fluted filter to function improperly in a pressurized cartridge brewing.

As discussed in Declaration II, the function of a filter in a drip-type brewer is not the same as the function of a filter in a cartridge like that of Sylvan, and fluted/pleated filters were not known for use in a pressure-type brewing cartridge or other arrangement that uses injected, pressurized water. Thus, one of skill in the art would not have had a reasonable expectation of success in using a fluted or pleated filter in the Sylvan cartridge. For example, although Spiteri indicates that the fluted filter is relatively rigid in a vertical direction, no mention is made that the filter has radial rigidity, and instead the filter is described as being “flexible,” e.g., at paragraph 0009. One of



ordinary skill in the art would have understood the “flexible” quality referred to and would have considered Spiteri’s teaching of a “flexible” filter to mean that the filter expands in the radial direction if subjected to the injection of pressurized water into the interior of the filter (e.g., in a way similar to that when the filter is unfolded and expanded for placement in a brew basket) – causing the filter to contact the container sidewalls. This understanding is completely consistent with Spiteri’s disclosure that the filter can assume the same volumetric dimensions of a supporting brew basket or other vessel during brewing. (Paragraph 0011 of Spiteri.) This, however, is in direct contradiction to the teaching of Sylvan that the filter should not contact the container sidewalls, e.g., at col. 1, lines 50-53 and col. 2, lines 3-7.

The Office Action, at pages 7 and 8, admits the filter of Spiteri is understood to contact the sidewalls of the brew basket in a drip-type application, but states that such contacting is understood to mean that only the apexes or splines of the pleats/flutes of the filter contact the sidewalls, with the remainder of the surface area of the filter remaining spaced from the sidewalls. Even if this is true (Spiteri makes no mention in this regard), this statement in the Office Action does not address what one of skill in the art would have expected regarding the contact state of the filter with the container sidewalls if such a filter were used in a Sylvan cartridge where pressurized water is injected. As described in detail in Sections 8 and 9 of Declaration II, one of skill in the art would have understood the Spiteri-type filter to be radially compliant and conformable. After all, it is this feature that allows the filter to be unfolded from storage and conform to the sidewall of a supporting brew basket. (See paragraph 0006 of Spiteri.) However, as also described in Declaration II, one of skill in the art would have expected that if a Spiteri-type fluted filter were used in the Sylvan cartridge, the radial compliance of the filter sidewalls resulting from the flutes would cause the filter to expand, flatten the flutes, and conform to the inner sidewall of the cartridge container when pressurized water was injected into the cartridge. (To visualize such expansion, consider, for example, a deflated balloon or crumpled paper bag placed inside of a cup. With pressurized air introduced into the balloon or bag, the balloon/bag expands to contact the sides of the cup.) The conical filter described in Sylvan has a conical shape for a reason – this shape is relatively rigid in



resisting internal pressure introduced by pressurized water, preventing the filter from contacting the container walls. As stated in Section 8 of Declaration II:

With this understanding, one of skill in the art would expect that if the filter element in Sylvan was highly flexible in radial directions, e.g., fluted like that in Spiteri, the filter element would tend to conform to and contact the cartridge container walls, especially when water under pressure is provided to the cartridge – a result that is explicitly taught to be avoided by Sylvan (see col. 3, lines 10-26). That is, one of skill in the art would have understood that introduction of pressurized water into a fluted filter in the Sylvan cartridge would cause the filter element to further expand (e.g., tending to stretch or flatten the sidewall flutes under the internal pressure) and contact the cartridge sidewalls. Thus, one of ordinary skill in the art would have understood that the use of a fluted filter element like that of Spiteri in the Sylvan cartridge would introduce a radially flexible and conformable filter element that can expand and conform to the cartridge walls upon the introduction of pressurized water into the cartridge. The radial flexibility and larger surface area of the fluted filter element would not allow it to resist deformation and potential contact with the container walls when under pressure during beverage creation. Since Sylvan expressly discloses that the filter element should not contact the container sidewalls during beverage formation, one of ordinary skill in the art would have considered a fluted filter like that in Spiteri to be unsuitable for use in a Sylvan cartridge.

Accordingly, one of skill in the art would not have understood Sylvan as teaching away from the use of a radially compliant, expandable filter, and would not have expected a fluted or pleated filter to function properly in a Sylvan cartridge. The Office Action does not address whether a fluted filter used in a Sylvan cartridge would tend to flatten the flutes and conform undesirably with the cartridge walls when pressurized water is introduced into the filter. Instead, the Office Action merely states what would be the expected configuration of the filter when used in a non-pressurized drip brewing application – a function that is not relevant to the use of the filter in pressurized cartridge brewing. To the extent that the statements in the Office Action regarding only apexes/splined portions of the fluted/pleated filter would contact a support are intended to suggest that a fluted filter would create exit channels for beverage flow between flutes, the statements sound eerily like the disclosure in this application, particularly in the complete absence of any teaching in the applied references that such channels would be formed by a fluted filter in a pressurized cartridge application.

2. There Is No Identified Problem, Design Need and/or Market Pressure That Would Have Provided One of Skill in The Art With a Reason to Make the Asserted Modification

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As mentioned above, although KSR permits that a reason for making a modification to a prior art device may come from a variety of sources, such as knowledge of those of skill in the art, a solution to a known problem, a design need, market pressure, etc. and does not require a specific teaching regarding the claimed subject matter, there must be some reason for making an asserted modification. This is particularly true where the asserted modification involves the use of an element to perform a function that the element is not known to perform, and where the known attributes of the element (radial flexibility of a fluted filter) contradict the objective of the base reference (Sylvan's teaching that the filter should not contact the container sidewall). As discussed above, there was no known function for a pleated/fluted filter in a pressurized beverage cartridge like that of Sylvan at the time of filing this application. Contrary to the requirements of KSR, the Office Action has not articulated any sustainable reason why one of skill in the art would have made the asserted modification of using a fluted filter as in Spiteri in the cartridge of Sylvan.

"augment the self-supporting aspect of the filter"

As mentioned above, the Office Action indicates that it would have been obvious to modify the Sylvan cartridge to include a fluted filter as taught by Spiteri "to further augment the self-supporting aspect of the filter."

As detailed in Section 8 of Declaration II, the reasons articulated in the Office Action why it would have been obvious to one of ordinary skill in the art to make the asserted modification are technically inaccurate. For example, Declaration II details why the Spiteri filter is not self-supporting in a way that makes it suited for use in a Sylvan cartridge. In Sylvan, the filter is joined at its top edge to the cartridge container sidewall, and thus is suspended from its top edge. Thus, the filter hangs in the container and there is no concern that the top edge of the filter will sag downwardly due to the pull of gravity. Sylvan describes that the filter must be self-supporting in the sense that it does not contact the container sidewalls when wetted and/or with the introduction of

pressurized water into the cartridge. (Sylvan col. 2, lines 3-7 and col. 3, lines 10-13, for example). This is not a concern for the Spiteri filter, which is supported by the brew basket at least at the filter bottom, and likely the sides, when the filter is filled with coffee grounds and water. Although Spiteri uses the phrase “self-supporting” in reference to the filter, the nature of the self-supporting aspect of the Spiteri filter is quite different from that of the filter in the Sylvan cartridge. Since the Spiteri filter is supported from the bottom in a brew basket, the Spiteri filter sidewalls must be self-supporting in the sense that the top edge of the filter will not sag downwardly due to the pull of gravity when the filter is wetted. (Spiteri paragraphs 0002, 0003, 0007 and 0008). Sagging of the filter top edge is impossible in the Sylvan cartridge – the filter top edge is joined to the container sidewall. Therefore, just because both Spiteri and Sylvan use the phrase “self-supporting” does not necessarily mean that the Spiteri filter would be suitable for use in the Sylvan cartridge, or would augment the self-supporting aspect of a filter in the Sylvan cartridge. In fact, Declaration II describes that one of skill in the art would have expected the pleated Spiteri filter to be radially compliant, resulting in the filter contacting the container walls during brewing if used in a Sylvan cartridge – a condition expressly taught to be avoided by Sylvan. Thus, as evidenced in Declaration II, a fluted filter would not augment the “self-supporting” aspect of a filter in the meaning of that term in the Sylvan patent.

“expedient to manufacture”

The Office Action also indicates that “[i]t would have also been expedient to manufacture the filter element of Sylvan with the pleats/flutes of Spiteri to facilitate handling and packaging, cost-effective production, and provide stiffness so as to ensure sufficient rigidity to avoid collapse or sagging when wetted, as explained at paragraphs 6 and particularly 7 of Sylvan.”

Page 8 of the Office Action states that “manufacturers are motivated to find expedients for preparation of, handling, packaging and otherwise cutting costs for manufacturing the filters.” Applicant completely agrees with this statement. However, the Office Action does not explain how a fluted Spiteri filter would be cheaper and/or easier to use in the manufacture of a Sylvan cartridge as compared to a conical filter. In contrast, Declaration II details the reasons why the use of a

Spiteri-type filter in the Sylvan cartridge would not be an expedient to manufacture, would not facilitate handling or packaging and would not be more cost-effective. The Declaration makes it clear that one of ordinary skill in the art would have viewed the more complicated filter arrangement of Spiteri to make manufacture of a Sylvan cartridge more complicated, and thus more expensive. As for facilitating packaging, once the Sylvan cartridge is made, it is not folded or otherwise configured for packaging purposes, as discussed in Spiteri at paragraph 0007. Instead, the formed filter is attached within a cartridge container, filled with coffee grounds or other material, and the cartridge closed. Thus, the “packaging” advantages touted in Spiteri are not relevant to a Sylvan cartridge. For example, Section 8 of Declaration II states:

As for being an expedient to manufacture, there is no teaching or suggestion in Sylvan or Spiteri that forming a Sylvan cartridge with a pleated or fluted filter would aid in manufacturing. In fact, the Spiteri filter includes several fold lines that must be made in a single sheet, which then must have two separate ends crimped together. See Fig. 6 of Spiteri. In contrast, the Sylvan filter is made as a cone with no folds and a single weld seam. I do not understand how complicating the filter arrangement in a Sylvan cartridge would be an expedient to manufacturing; to the contrary, I believe adding pleats or folds like that taught in Spiteri would complicate the manufacturing process.

As for facilitating handling and packaging, and cost-effective production, I do not understand Sylvan or Spiteri as teaching that a fluted or pleated filter arrangement would facilitate handling or packaging, or would reduce production costs when making a Sylvan cartridge. As mentioned above, handling and manufacturing a fluted or pleated filter as taught in Spiteri would likely increase costs of manufacture, and I believe would also complicate the filter handling process. That is, a fluted or pleated filter like that in Spiteri would have to be expanded into place in a cartridge and held appropriately for joining to the interior of the container to make a Sylvan cartridge. On the other hand, a conical filter like that in Sylvan may be formed to have a circular shape at its top end that matches the size of the container, thereby easing the filter insertion and welding process. In my opinion, using a pleated or fluted filter like that of Spiteri in a Sylvan cartridge would actually complicate handling and packaging and would not be cheaper.

...Regarding cost-effectiveness, Spiteri merely states the obvious that cost-effectiveness must be considered, not that the described filter is any more cost-effective than any other filter arrangement. Regarding packaging, Spiteri mentions that the described filters can be folded flat so as to occupy a minimal area when packaged. A filter in Sylvan is not folded flat for packaging, and instead is in a fully expanded form in the container when shipped from the factory. One of skill in the art would not view a Sylvan filter's ability to be folded flat to be an advantage.

Accordingly, Applicant submits that the use of a fluted filter in a Sylvan cartridge would not have been an “expedient to manufacture” whether from a cost standpoint, ease of manufacture or functional capability.

“increase the effective filtering area”

Page 4 of the Office Action also states that the avoidance of sagging resulting from the use of a fluted filter taught by Spiteri in the Sylvan cartridge would “desirably increase the effective filtering area and area available for filtration flow, flow of filtered coffee.” This is an argument that was made in earlier Office Actions, was omitted from the January 30, 2007 and August 10, 2007 Office Actions (and thus was not addressed in Declarations I and II) and has been resurrected for this latest Office Action.

As was discussed during a previous personal interview, while increased filter surface area may be desirable in some filtration applications, such as drinking water filtration (and possibly even drip brewing systems), this is not necessarily the case with beverage production using a cartridge like that in Sylvan. As a practical matter, simply increasing filter surface area in the Sylvan cartridge does not necessarily improve the cartridge’s ability to make a suitable beverage. Sylvan teaches that the flow of the beverage occurs through the entire filter surface during hot water injection. Thus, increasing the filter surface area in the Sylvan cartridge provides an increased area for brew water to pass through the filter without contacting or otherwise properly infusing with the coffee grounds. The result, then, of simply increasing filter area is likely to be reduced contact time between the brew water and coffee grounds, providing a coffee beverage with less dissolved solids and other materials that the water picks up during the infusion process. As discussed in the “Background” section of this application, reduction in dissolved solids is generally undesirable when brewing coffee. Thus, simply increasing filter surface area in the Sylvan device would likely result in lower quality coffee.



Accordingly, one of ordinary skill in the art would not have viewed the increased filter area of a fluted filter as a reason for modifying the filter in a Sylvan cartridge as asserted in the Office Action.

“reasonably expected to investigate other forms of coffee brewing assemblies”

The Office Action, at page 8, also states that “the skilled artisan...would have been reasonably expected to investigate other forms of automatic brewing assemblies when seeking to solve problems concerned with filtering coffee-producing water.” While Applicant generally agrees with this statement, the Office Action articulates no viable reason why one of ordinary skill in the art would seek to replace the conical filter of the Sylvan cartridge with a fluted filter, or what problem would be solved by doing so. Moreover, and as discussed above, there were good reasons why one of skill in the art would not have been motivated to use a fluted filter in a Sylvan cartridge, e.g., because the filter would undesirably contact the container sidewalls when pressurized water is injected into the cartridge.

Thus, while one of skill in the art might have been expected to explore various filter options for the Sylvan cartridge, one such option – the use of a fluted filter – would have been dismissed by one of ordinary skill in the art. For example, there were other options for increasing a storage area for coffee grounds in a cartridge using a flat, horizontal filter arrangement like that shown in EP 101439 which would have had no risk of contacting the cartridge sidewalls.

In view of the foregoing, Applicant submits that the Office Action has not articulated any viable design incentive, market force or other reason that would have prompted one to make the asserted modification. In fact, the Office Action has not identified any technically accurate problem that would have been solved by using a fluted filter in the Sylvan cartridge.

In summary, the teachings in the art regarding the use of fluted filters in drip-type (or gravity-type) brewers do not necessarily inform one of skill in the art as to how a filter should be arranged in a brew cartridge used in a pressure-type brewing system that injects pressurized hot water into the cartridge, like that in Sylvan. To conclude that the known use of fluted filters in drip-



type brewing renders the asserted modification of the Sylvan cartridge obvious is to impermissibly use hindsight reasoning that picks and chooses features from the art, and assembles them in a way not taught or suggested outside of this application. For example, both pressure-type brew cartridges and fluted filters in drip-type brewing have been known for some time (Sylvan was filed over 15 years ago and fluted filters used in drip-type coffee brewers have been in use for much longer). However, Applicant is unaware of any reference that describes the use of a pleated or fluted filter in a cartridge like that in Sylvan.

Accordingly, in the absence of any viable reason to support the asserted obvious modification of a Sylvan cartridge to include a pleated/fluted filter as taught in Spiteri, claims 1, 12 and 44, as well as their respective dependent claims, are patentable.

D. Rejection of Claims Over Sylvan In View of Spiteri and Daswick

Claims 5, 6, 15 and 16 Are Not Obvious

Claims 5 and 15 recite “wherein said filter side wall extends downwardly from said peripheral juncture and away from said container side wall at an angle of less than about 1 degree.” Claims 6 and 16 recite “wherein said angle is between about 0.50 to 0.90 degrees.”

Nothing in Spiteri, Sylvan or Daswick suggests that the filter sidewall in a Sylvan-type cartridge could or should extend away from the container sidewall at an angle of less than about 1 degree, or 0.5 to 0.9 degrees. As discussed above, Sylvan is explicit that the filter sidewall should not contact the container sidewall, and close proximity of the filter sidewall to the container sidewall resulting from a small angle of divergence would place the filter at further risk of undesired contact.

Accordingly, for at least the reasons set forth above regarding the undesirability of having a filter in a Sylvan cartridge contact the container sidewall, one of ordinary skill in the art would not have modified the Sylvan cartridge so that the filter extends downwardly from the container sidewall at an angle of less than about 1 degree, or 0.5 to 0.9 degrees. Claims 5, 6, 15 and 16 are therefore patentable in addition to the reasons set forth above regarding independent claims 1 and 12.

Claims 9-11 and 19-21 Are Not Obvious

Claims 9 and 19 recite “wherein a permeability of a lower region of said filter element is reduced in comparison to a permeability of an upper region thereof.” Claims 10 and 20 recite “wherein said reduced permeability is achieved by increasing a thickness of said filter element in said lower region.” Claims 11 and 21 recite “wherein said increased thickness is achieved by lining the lower region of said filter element with an insert.”

As admitted in the Office Action at page 6, Sylvan and Spiteri are completely silent regarding the permeability of the filter in a lower region as compared to the upper region. According to the Office Action, Daswick purportedly discloses reduced permeability that is achieved by increasing the thickness by lining the lower region of the filter element with an insert (ref. 28 in Fig. 2). However, a review of Daswick shows that this is false. The element 28 is a mesh or web and functions to retain the coffee grounds 16 and the water diverting element 18 within the filter. (Col. 3, lines 1-16 of Daswick.) The mesh or web 28 does not restrict flow through any portion of the filter 10. As shown, for example, in Fig. 7, when the filter 10 is filled with water, the mesh or web 28 floats above the top surface of the water because the buoyant element 18 (made of Styrofoam or similar material) floats on the water. (Col. 2, lines 66-68 of Daswick.) Thus, the mesh or web 28 does not reduce the permeability of any portion of the filter 10, much less the permeability of a lower region of the filter element in comparison to an upper region.

Accordingly, claims 9-11 and 19-21 are therefore patentable in addition to the reasons set forth above regarding independent claims 1 and 12.

Claims 3 and 32 Are Not Obvious

Claims 3 and 32 are patentable for at least the reasons set forth above with respect to claims 1 and 12, from which claims 3 and 32 depend, respectively.

E. Rejection of Claims Over Sylvan In View of Spiteri and Michielsen

Claims 8 and 18 Are Not Obvious

Claims 8 and 18 are patentable for at least the reasons set forth above with respect to claims 1 and 12, from which claims 8 and 18 depend, respectively.

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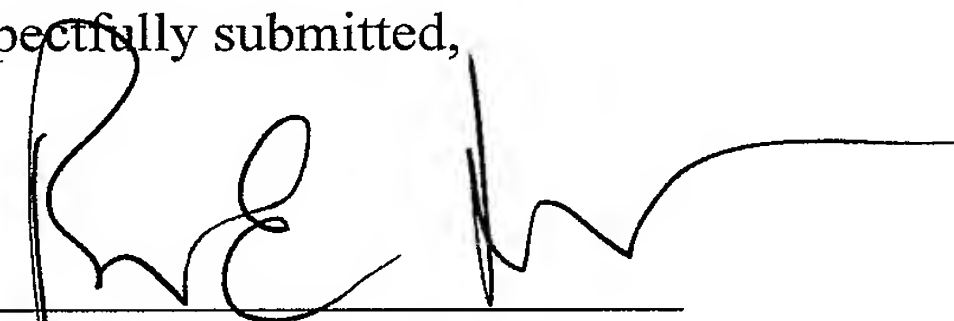
Docket No.: K0502.70037US00

**CONCLUSION**

Because the pending claims patentably distinguish over the asserted combinations of the applied references, and because the Office Action fails to set forth any supportable reason for combining the references in the manner asserted, a sustainable case of obviousness has not been established. Accordingly, the rejection of those claims under 35 U.S.C. §103(a) as purportedly being obvious should be reversed.

Dated: June 10, 2008

Respectfully submitted,



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**APPENDIX A**

**Claims Involved in the Appeal of Application Serial No. 10/658,925**

1. (Previously presented) A beverage filter cartridge comprising:
  - a container having a container bottom and a container side wall extending upwardly from said container bottom to a top opening;
  - a filter element having a filter bottom and a filter side wall extending upwardly from said filter bottom, said filter element being received in said container and directly joined at a peripheral juncture to an interior of said container side wall, the interior of said container thus being subdivided by said filter element into a first chamber accessible via said top opening, and a second chamber, wherein pleats or flutes in said filter side wall form exit channels leading to said second chamber, and said exit channels are located between said container side wall and said filter side wall;
  - a beverage medium received in said first chamber via said top opening; and
  - a cover closing said top opening, said cover being piercable to admit liquid into said first chamber for contact with said beverage medium to produce a beverage, said filter element being permeable to accommodate the flow therethrough of said beverage for delivery via said exit channels to said second chamber, and said container bottom being piercable to accommodate an outflow of said beverage from said cartridge.
2. (Original) The beverage filter cartridge of claim 1 wherein said container and filter bottom are substantially parallel.
3. (Original) The beverage filter cartridge of claim 1 wherein said exit channels are defined only by flutes in said filter side wall.
4. (Original) The beverage filter cartridge of claim 1 wherein said exit channels are defined only by pleats in said filter side wall.

5. (Original) The beverage filter cartridge of claim 1 wherein said filter side wall extends downwardly from said peripheral juncture and away from said container side wall at an angle of less than about 1 degree.
6. (Original) The beverage filter cartridge of claim 5 wherein said angle is between about 0.50 to 0.90 degrees.
7. (Original) The beverage filter cartridge of claim 1 wherein a height of said first chamber measured between said filter bottom and said cover is between about 75 to 80% of a height of an interior of said cartridge as measured between said container bottom and said cover.
8. (Original) The beverage filter cartridge of claim 1 wherein said exit channels increase in width from a minimum adjacent said peripheral juncture to a maximum adjacent said filter bottom.
9. (Original) The beverage filter cartridge of claim 1 wherein a permeability of a lower region of said filter element is reduced in comparison to a permeability of an upper region thereof.
10. (Original) The beverage filter cartridge of claim 9 wherein said reduced permeability is achieved by increasing a thickness of said filter element in said lower region.
11. (Original) The beverage filter cartridge of claim 10 wherein said increased thickness is achieved by lining the lower region of said filter element with an insert.
12. (Previously presented) A beverage filter cartridge comprising:
  - a container having a side wall and a bottom;
  - a filter element having a side wall and a bottom, said filter element being arranged to subdivide the interior of said container into a first chamber inside said filter element and a second chamber located outside said filter element, said filter element being directly joined to an interior of the container side wall at a peripheral juncture, and said filter sidewall having corrugations, having

at least a portion that is permeable, and being arranged so that at least a portion of said filter side wall is spaced inwardly from and out of contact with said container side wall; and  
a cover enclosing at least a portion of the first chamber.

13. (Original) The beverage filter cartridge of claim 12, wherein said container and filter bottoms are substantially parallel.

14. (Original) The beverage filter cartridge of claim 12, wherein said corrugations form exit channels in said filter side wall.

15. (Original) The beverage filter cartridge of claim 12, wherein said filter side wall extends downwardly from said peripheral juncture and away from said container side wall at an angle of less than about 1 degree.

16. (Original) The beverage filter cartridge of claim 15, wherein said angle is between about 0.50 to 0.90 degrees.

17. (Original) The beverage filter cartridge of claim 12, wherein a height of said first chamber measured between said filter bottom and said cover is between about 75 to 80% of a height of an interior of said cartridge as measured between said container bottom and said cover.

18. (Original) The beverage filter cartridge of claim 12, wherein said corrugations increase in width from a minimum adjacent said peripheral juncture to a maximum adjacent said filter bottom.

19. (Original) The beverage filter cartridge of claim 12, wherein a permeability of a lower region of said filter element is reduced in comparison to a permeability of an upper region thereof.

20. (Original) The beverage filter cartridge of claim 19 wherein said reduced permeability is achieved by increasing a thickness of said filter element in said lower region.



21. (Original) The beverage filter cartridge of claim 20 wherein said increased thickness is achieved by lining the lower region of said filter element with an insert.
22. (Original) The beverage filter cartridge of claim 12, wherein a majority of the filter side wall is spaced inwardly from and out of contact with the container side wall.
23. (Original) The beverage filter cartridge of claim 12, wherein said container is impermeable and said cover is impermeable.
24. (Original) The beverage filter cartridge of claim 12, wherein said filter bottom is vertically spaced from the container bottom.
25. (Original) The beverage filter cartridge of claim 12, wherein said corrugations form exit channels located between said container side wall and said filter side wall.
26. (Original) The beverage filter cartridge of claim 25, wherein said exit channels lead downwardly to said second chamber.
27. (Original) The beverage filter cartridge of claim 12, wherein said container has a frustoconical shape.
28. (Original) The beverage filter cartridge of claim 12, wherein said container has a collar surrounding said top opening, and said cover is sealed to said collar.
29. (Original) The beverage filter cartridge of claim 12, wherein said filter element includes an upper rim, and said filter element is joined to the container at the upper rim.

39. (Original) The beverage filter cartridge of claim 1, wherein said container has a frustoconical shape.

40. (Original) The beverage filter cartridge of claim 1, wherein said container has a collar surrounding said top opening, and said cover is sealed to said collar.

41. (Original) The beverage filter cartridge of claim 1, wherein said filter element includes an upper rim, and said filter element is joined to the container at the upper rim.

42. (Original) The beverage filter cartridge of claim 1, wherein the cover and the container are piercable when the cartridge is used to form a beverage.

43. (Original) The beverage filter cartridge of claim 1, in combination with a beverage forming system that is adapted to pierce the cover, inject heated liquid into the first chamber, and pierce the container to allow beverage to exit the second chamber.

44. (Previously presented) A beverage filter cartridge comprising:

a container having a side wall and a bottom;

a filter element having a side wall and a bottom, said filter element being arranged to subdivide the interior of said container into a first chamber inside said filter element and a second chamber located outside said filter element, said filter element being directly joined to an interior of the container side wall at a peripheral juncture, and said filter sidewall having corrugations and being arranged so that at least a portion of said filter side wall is spaced inwardly from and out of contact with said container side wall; and

a cover enclosing at least a portion of the first chamber.

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Docket No.: K0502.70037US00

**APPENDIX B**

1. Declaration under Rule 132 filed November 29, 2007 (Declaration II).
2. Declaration under Rule 132 filed July 9, 2007 (Declaration I).

Docket No.: K0502.70037US00  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Basil Karanikos et al.  
Serial No.: 10/658,925  
Confirmation No.: 3129  
Filed: September 10, 2003  
For: BEVERAGE FILTER CARTRIDGE  
Examiner: S. U. Kim  
Art Unit: 1723

Certificate of Mailing Under 37 CFR 1.8(a)  
I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service on the date shown below with sufficient postage as First Class Mail, in an envelope addressed to: MS Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Dated: 11.29.07 Signature: Lisa A. Robillard (Lisa A. Robillard)

**DECLARATION UNDER RULE 132**

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

1. I, Karl Winkler, have been asked by Keurig, Incorporated to objectively assess a rejection of patent claims made in the above-identified application.
2. For the past approximately 14 months, I have been the Vice President and General Manager, Engineering and Product Development for Kronos Incorporated, which has a place of business at 464 common St. Suite 301 Belmont, MA 98052. Prior to that, I served for 3 years as Vice President, Engineering for Armatron International, redesigning and launching lines of commercial and consumer products for Sam's Club, Costco, Flowtron, Outdoor Products and The Sharper Image. Prior to that, I worked as a senior product development engineer for Keurig, Incorporated, developing commercial and consumer single cup coffee brewing systems. Prior to that, I worked for The Schawbel Corporation, designing and developing products for such customers as Conair,

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Black & Decker, Craftsman, S.C. Johnson, Philips, Scripto-Tokia and Sanyei/Koizumi. I have approximately 3 years of experience related to beverage cartridge brewing systems.

3. Regarding my formal educational background, I received a Bachelors of Science in Electrical Engineering from Northeastern University.

4. During my employment with Keurig, Incorporated from September 2000 to September 2003, I was active in designing, testing and otherwise developing two different single cup brewing systems that use a beverage filter cartridge like that described in the Sylvan patent cited below. My tenure with Keurig, Incorporated included time prior to, during and after development of the beverage filter cartridge including a fluted filter that is the subject of the above-identified patent application.

5. I have reviewed the Office Action dated August 10, 2007, references in the Office Action that are used to reject the claims (i.e., U.S. Patent 5,325,765 to Sylvan, U.S. Patent Publication 2002/0185010 to Spiteri, U.S. Patent 3,971,305 to Daswick, and U.S. Patent 3,389,650 to Michielsen), and the currently pending claims in this application. (I note that sections of the Office Action rejecting dependent claims refer to references "Lesser" and "Tanner" but the relevance of these references is not clear given that no rejection of claims is made in view of these references.)

6. I understand that independent claims 1, 12 and 44 in this application generally recite a beverage filter cartridge including:

- a container having a bottom and sidewall extending upwardly from the bottom to a top opening;

- a filter element having a bottom and a sidewall extending upwardly from the bottom, where the filter element is directly joined at a peripheral juncture to the container sidewall and the filter sidewall has pleats, flutes or corrugations; and

- a cover that closes the top opening.

Claim 1 also requires that pleats or flutes in the filter element form exit channels between the filter sidewall and the cartridge sidewall that lead to a second chamber below the filter element. Claims

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12 and 44 also require that at least a portion of the filter sidewall is spaced inwardly from and out of contact with the container side wall. Claim 12 requires that the filter sidewall includes at least a portion that is permeable.

7. I understand that the Office Action rejects independent claims 1, 12 and 44 based on the purported obviousness of combining a pleated/fluted filter disclosed in Spiteri into the beverage cartridge of Sylvan. The examiner asserts that reasons for combining the fluted Spiteri filter in the Sylvan cartridge are:

“[i]t would have been obvious to one of ordinary skill in the art to have modified the coffee filter device of Sylvan by utilizing a pleated or fluted filter, as taught by Spiteri, in order to further augment the self-supporting aspect of the filter. It would have also been expedient to manufacture the filter element of Sylvan with the pleats/flutes of Spiteri to facilitate handling and packaging, cost-effective production, and provide stiffness so as to ensure sufficient rigidity to avoid collapse or sagging when wetted, as explained at paragraphs 6 and particularly 7 of Sylvan.” (Paragraph bridging pages 4 and 5 of the Office Action.)

8. With respect to the rejection of claims 1, 12 and 44, I disagree with the Examiner regarding the stated reasons why one of ordinary skill in the art would have modified the Sylvan cartridge to include a pleated filter as described in Spiteri. Although the examiner cites as a reason for the asserted obviousness a desire by one of skill in the art to augment the self-supporting aspect of the filter as taught in Sylvan, the self-supporting nature of the filter in Sylvan is very different from that of the self-supporting filter in Spiteri. That is, although Spiteri discloses that the pleated/fluted filter is self-supporting, the filter is self-supporting in a different sense and for different reasons in the Spiteri as compared to Sylvan. Sylvan discloses that the filter element should be self-supporting in the sense that it should not collapse against the container when attached to the container wall and wetted (col. 1, lines 50-53 of Sylvan). Also, the conical filter element of Sylvan is fixed to the container at its top end, and thus is supported by the container from its top so that the filter hangs inside the container. A conical filter element fixed within a container like that shown in Fig. 2 of Sylvan would be quite rigid in resisting high pressure introduced into the filter element by way of



the inlet needle 70 (see Fig. 4 and col. 4, lines 21-24 of Sylvan). That is, with the conical filter element fixed to the sidewall of the cartridge and pressurized hot water injected into the cartridge, the filter element would have little ability or tendency to deform and contact the container sidewalls because the filter paper of the filter element (not a highly stretchable material) and its configuration in the cartridge (a cone) will not allow substantial expansion or other deformation of the filter element.

In contrast, Spiteri teaches that the disclosed fluted filter element is self-supporting in the sense that the filter can rest on the bottom of a filter basket and the sidewalls can "stand" on their own within the basket. Paragraph [0005] of Spiteri. However, the Spiteri filter element remains flexible in other directions, including the ability of the filter element to expand and/or contract in radial directions, e.g., so that the filter element can conform to the filter basket walls. Paragraph [0009]. If the filter element were not flexible in this direction, the filter would not be capable of expanding from a folded configuration as shown in Fig. 1 to an unfolded configuration as shown in Fig. 4. Thus, although the Spiteri filter is relatively rigid in a vertical direction so the filter can support itself vertically in a brew basket, the Spiteri filter remains flexible in radial directions so the filter can be expanded from a folded configuration and the sidewalls can conform to the walls of the brew basket.

In view of the teachings of Spiteri, one of skill in the art would understand the "self-supporting" nature of the Spiteri filter as being very different from and in no way relevant to the "self-supporting" features required of a filter in a Sylvan cartridge. That is, one of skill in the art would understand the Spiteri filter as being capable of supporting itself vertically when resting on its bottom surface in a brew basket. Such vertical self-support of a filter to prevent the walls from collapsing under the force of gravity is not required in a Sylvan filter since the Sylvan filter is supported at its top edge by the container so the majority of the filter hangs from the top edge. In Sylvan, the filter needs to be self supporting in the sense that it will not expand, sag or otherwise move in sections below the secured top edge so as to contact the container. Nothing in Spiteri or Sylvan teaches that pleats or flutes in a filter would help prevent a filter in a Sylvan cartridge from contacting the container sidewalls when wetted and/or under pressure.

Moreover, one of skill in the art would view the Spiteri filter as being flexible in radial directions and would understand that when pressure is applied at the interior of the Spiteri filter, the filter would expand radially. For example, if the Spiteri filter is placed in a brew basket and filled with coffee grounds, one of skill in the art would expect the filter element to expand into contact with the supporting brew basket. With this understanding, one of skill in the art would expect that if the filter element in Sylvan was highly flexible in radial directions, e.g., fluted like that in Spiteri, the filter element would tend to conform to and contact the cartridge container walls,, especially when water under pressure is provided to the cartridge – a result that is explicitly taught to be avoided by Sylvan (see col. 3, lines 10-26). That is, one of skill in the art would have understood that introduction of pressurized water into a fluted filter in the Sylvan cartridge would cause the filter element to further expand (e.g., tending to stretch or flatten the sidewall flutes under the internal pressure) and contact the cartridge sidewalls. Thus, one of ordinary skill in the art would have understood that the use of a fluted filter element like that of Spiteri in the Sylvan cartridge would introduce a radially flexible and conformable filter element that can expand and conform to the cartridge walls upon the introduction of pressurized water into the cartridge. The radial flexibility and larger surface area of the fluted filter element would not allow it to resist deformation and potential contact with the container walls when under pressure during beverage creation. Since Sylvan expressly discloses that the filter element should not contact the container sidewalls during beverage formation, one of ordinary skill in the art would have considered a fluted filter like that in Spiteri to be unsuitable for use in a Sylvan cartridge.

The Office Action asserts additional reasons why one of skill in the art would incorporate a pleated or fluted filter in the Sylvan cartridge, including “[i]t would have also been expedient to manufacture the filter element of Sylvan with the pleats/flutes of Spiteri to facilitate handling and packaging, cost-effective production, and provide stiffness so as to ensure sufficient rigidity to avoid collapse or sagging when wetted, as explained at paragraphs 6 and particularly 7 of Sylvan.” As for being an expedient to manufacture, there is no teaching or suggestion in Sylvan or Spiteri that forming a Sylvan cartridge with a pleated or fluted filter would aid in manufacturing. In fact, the Spiteri filter includes several fold lines that must be made in a single sheet, which then must

have two separate ends crimped together. See Fig. 6 of Spiteri. In contrast, the Sylvan filter is made as a cone with no folds and a single weld seam. I do not understand how complicating the filter arrangement in a Sylvan cartridge would be an expedient to manufacturing; to the contrary, I believe adding pleats or folds like that taught in Spiteri would complicate the manufacturing process.

As for facilitating handling and packaging, and cost-effective production, I do not understand Sylvan or Spiteri as teaching that a fluted or pleated filter arrangement would facilitate handling or packaging, or would reduce production costs when making a Sylvan cartridge. As mentioned above, handling and manufacturing a fluted or pleated filter as taught in Spiteri would likely increase costs of manufacture, and I believe would also complicate the filter handling process. That is, a fluted or pleated filter like that in Spiteri would have to be expanded into place in a cartridge and held appropriately for joining to the interior of the container to make a Sylvan cartridge. On the other hand, a conical filter like that in Sylvan may be formed to have a circular shape at its top end that matches the size of the container, thereby easing the filter insertion and welding process. In my opinion, using a pleated or fluted filter like that of Spiteri in a Sylvan cartridge would actually complicate handling and packaging and would not be cheaper.

As for "provid[ing] stiffness so as to ensure sufficient rigidity to avoid collapse or sagging when wetted, as explained at paragraphs 6 and particularly 7 of Sylvan," Sylvan is not organized by paragraphs, and so I am unsure which section of Sylvan the examiner is identifying. If the examiner is referring to Spiteri (in which paragraphs 6 and 7 describe considerations regarding cost-effectiveness, packaging and filter stiffness), I believe that these teachings in Spiteri are not relevant to a Sylvan cartridge. Regarding cost-effectiveness, Spiteri merely states the obvious that cost-effectiveness must be considered, not that the described filter is any more cost-effective than any other filter arrangement. Regarding packaging, Spiteri mentions that the described filters can be folded flat so as to occupy a minimal area when packaged. A filter in Sylvan is not folded flat for packaging, and instead is in a fully expanded form in the container when shipped from the factory. One of skill in the art would not view a Sylvan filter's ability to be folded flat to be an advantage. As for stiffness to ensure rigidity, as mentioned above, the Spiteri filter needs vertical rigidity

because the filter is supported from the bottom and vertical rigidity helps ensure that the sidewalls do not fold inward when wetted. A filter in a Sylvan cartridge is supported from the top and hangs from the container sidewall. There is no risk of the top edge folding down under the pull of gravity when the filter is wetted. Instead, the filter needs sufficient rigidity in a radial direction to avoid contact with the container walls. Spiteri does not teach that the folds or pleats in the filter provide radial stiffness for a filter, and thus one of skill in the art would not understand the Spiteri filter as providing advantages for application in the Sylvan cartridge.

9. As I have stated in a prior Declaration, it is my opinion that teachings regarding a filter element for use in a drip-type coffee brewer, like that in Spiteri or previously applied Frise, are not necessarily suitable for use in forming a beverage cartridge having a filter element and that is used to form beverages using injected, pressurized water. The functioning of the filter element in a drip-type brewer is quite different from that in the Sylvan cartridge. The Spiteri filter element is supported from the bottom and sides, and most of the beverage flow occurs through the bottom of the filter element due to gravity. In contrast, the filter element in the Sylvan cartridge is subjected to pressure during beverage formation, and flow through the filter is the result of pressure driving the liquid through the filter in nearly all directions, not one direction due to gravity. This pressure places significantly more stress on the filter sidewall than that experienced during drip-type brewing, and requires the filter element to function in a different way. As a result, one of ordinary skill in the art would not necessarily have concluded that because a filter configuration (i.e., a fluted filter sidewalls) is suitable for use in drip-type brewing, that the same configuration would be suitable for use in pressurized cartridge-based beverage formation. This is especially true where the reason for the fluted sidewalls (conformance of the filter sidewalls to the filter support and/or vertical stiffness to avoid sidewall collapse) is either in direct contradiction to the teachings of Sylvan that the filter sidewall should avoid contact with the container sidewall or is irrelevant to the filter's function in a Sylvan cartridge.

In fact, the invention regarding use of a pleated, fluted or corrugated filter element as set forth in claims 1, 12 and 44 did not involve the known use of a prior art element to obtain predictable results. Although fluted sidewall filters were known for gravity-driven drip-type



brewing, pleated, fluted or corrugated filter elements were not used in pressurized cartridge-type beverage formation. Thus, one of ordinary skill in the art would not have been able to predict whether use of such a filter element in a beverage cartridge like Sylvan would have been successful since there was no established function of such filter elements for that application. To the contrary, the known function of a fluted filter element was that its sidewalls would conform to and contact the sidewalls of a supporting basket – in direct contrast to the desired function of a filter sidewall in a Sylvan cartridge. It is my opinion that nothing in Spiteri would have suggested to one of ordinary skill in the art that the disclosed fluted filter would be suitable for use in any application other than one in which the filter is supported on the bottom and sides, much less suitable for use in a Sylvan beverage cartridge.

11. In view of the above, it is my opinion that the rejection of independent claims 1, 12 and 44 in the Office Action is not sustainable, in part because it is based on inaccurate or unfounded reasons for combining features of the prior art. That is, the Office Action has not articulated at least one reason why one of ordinary skill in the art would have used a fluted filter like that in Spiteri in a Sylvan beverage cartridge. To the contrary, there are several reasons described above why one of ordinary skill in the art would not have used such a filter in the Sylvan cartridge.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above application and any patent or application related thereto.

  
Name

11/21/07  
Date

1276384.1

Docket No.: K0502.70037US00  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Basil Karanikos et al.  
Serial No.: 10/658,925  
Confirmation No.: 3129  
Filed: September 10, 2003  
For: BEVERAGE FILTER CARTRIDGE  
Examiner: S. U. Kim  
Art Unit: 1723

Express Mail Label No. EV493497949US

Dated: 7.9.07

**DECLARATION UNDER RULE 132**

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

1. I, Karl Winkler, have been asked by Keurig, Incorporated to objectively assess a rejection of patent claims made in the above-identified application.
2. For the past approximately 9 months, I have been the Vice President and General Manager, Engineering and Product Development for Kronos Incorporated, which has a place of business at 297 Billerica Road, Chelmsford, MA 01824. Prior to that, I served for 3 years as Vice President, Engineering for Armatron International, redesigning and launching lines of commercial and consumer products for Sam's Club, Costco, Flowtron, Outdoor Products and The Sharper Image. Prior to that, I worked as a senior product development engineer for Keurig, Incorporated, developing commercial and consumer single cup coffee brewing systems. Prior to that, I worked for The Schawbel Corporation, designing and developing products for such customers as Conair,



Black & Decker, Craftsman, S.C. Johnson, Philips, Scripto-Tokia and Sanyei/Koizumi. I have approximately 3 years of experience related to beverage cartridge brewing systems.

3. Regarding my formal educational background, I received a Bachelors of Science in Electrical Engineering from Northeastern University.

4. During my employment with Keurig, Incorporated from September 2000 to September 2003, I was active in designing, testing and otherwise developing two different single cup brewing systems that use a beverage filter cartridge like that described in the Sylvan patent cited below. My tenure with Keurig, Incorporated included time prior to, during and after development of the beverage filter cartridge including a fluted filter that is the subject of the above-identified patent application.

5. I have reviewed the Office Action dated January 30, 2007, references in the Office Action that are used to reject the claims (i.e., U.S. Patent 5,325,765 to Sylvan, PCT publication WO 91/14389 to Frise, U.S. Patent 3,971,305 to Daswick, and U.S. Patent 3,389,650 to Michielsen), and the currently pending claims in this application. (I note that sections of the Office Action rejecting dependent claims refer to references "Lesser" and "Tanner" but the relevance of these references is not clear given that no rejection of claims is made in view of these references.)

6. I understand that independent claims 1, 12 and 44 in this application generally recite a beverage filter cartridge including:

- a container having a bottom and sidewall extending upwardly from the bottom to a top opening;

- a filter element having a bottom and a sidewall extending upwardly from the bottom, where the filter element is directly joined at a peripheral juncture to the container sidewall and the filter sidewall has pleats, flutes or corrugations; and

- a cover that closes the top opening.

Claim 1 also requires that pleats or flutes in the filter element form exit channels between the filter sidewall and the cartridge sidewall that lead to a second chamber below the filter element. Claims

12 and 44 also require that at least a portion of the filter sidewall is spaced inwardly from and out of contact with the container side wall. Claim 12 requires that the filter sidewall includes at least a portion that is permeable.

7. I understand that the Office Action rejects independent claims 1, 12 and 44 based on the purported obviousness of combining a pleated/fluted filter disclosed in Frise into the beverage cartridge of Sylvan. The examiner asserts that reasons for combining the fluted Frise filter in the Sylvan cartridge are:

to augment the self-supporting aspect of the filter under any condition of distortion including mechanical and thermal stresses and stresses of the filter being removed for washing and cleaning prior to re-insertion. That is, making the filter fluted or pleated as in Frise would make the filter more resiliently self-supporting.

8. With respect to the rejection of claims 1, 12 and 44, I disagree with the Examiner regarding the stated reasons why one of ordinary skill in the art would have modified the Sylvan cartridge to include a pleated filter as described in Frise. For example, the examiner assumes that resiliency of a filter element in the Sylvan cartridge is inherently desirable. This is simply not true. Although Sylvan discloses that the filter element should be self-supporting in the sense that it should not collapse against the container when attached to the container wall and wetted (col. 1, lines 50-53 of Sylvan), Sylvan never discloses that the filter should be resilient. (The filter is disclosed to be made of a heat sealable paper of cellulosic and synthetic fibers in a smooth conical shape – col. 3, lines 4-6). In fact, one of ordinary skill in the art reading Sylvan would more likely conclude that the filter element should be more rigid than resilient so that the filter element would not collapse or otherwise distort so as to come into contact with the cartridge sidewalls during use. A conical filter element fixed within a container like that shown in Fig. 2 of Sylvan would be quite rigid in resisting high pressure introduced into the filter element by way of the inlet needle 70 (see Fig. 4 and col. 4, lines 21-24 of Sylvan). That is, with the conical filter element fixed to the sidewall of the cartridge and pressurized hot water injected into the cartridge, the filter element would have little ability or tendency to deform and contact the container sidewalls because the filter paper of the filter element

(not a highly stretchable material) and its configuration in the cartridge (a cone) will not allow substantial expansion or other deformation of the filter element.

In contrast, Frise teaches that the disclosed fluted filter element is highly flexible and resilient so that the filter sidewalls closely conform to the filter basket and the filter “moulds itself to the full shape of the supporting brewing funnel basket.” (See Frise page 3, lines 12-15 and page 4, lines 15-19, emphasis added). Thus, although the Frise filter element is resilient (not a desirable feature for a filter in the Sylvan cartridge), it is not “self-supporting” at all. Instead, the brew basket is said to support the filter element, which moulds itself to the basket. This makes sense, since conformation of the filter element to its supporting brew basket is the purpose of a fluted filter according to Frise. However, based on the teachings of Frise, if the filter element in Sylvan was highly resilient and fluted like that in Frise, one of skill in the art would have understood that the use of that filter element in a Sylvan cartridge would tend to conform to and contact the cartridge container walls – a result that is explicitly taught to be avoided by Sylvan (see col. 3, lines 10-26). Furthermore, one of skill in the art would have understood that introduction of pressurized water into the fluted filter would cause the filter element to further expand (e.g., tending to stretch or flatten the sidewall flutes under the internal pressure) and contact the cartridge sidewalls. Thus, one of ordinary skill in the art would have understood that the use of a fluted filter element like that of Frise in the Sylvan cartridge would introduce a highly resilient and conformable filter element that can expand and conform to the cartridge walls upon the introduction of pressurized water into the cartridge. The high resiliency and larger surface area of the fluted filter element would not allow it to resist deformation and potential contact with the container walls when under pressure during beverage creation. Since Sylvan expressly discloses that the filter element should not contact the container sidewalls during beverage formation, one of ordinary skill in the art would have considered a fluted filter like that in Frise to be unsuitable for use in a Sylvan cartridge.

Also, one of skill in the art would not have considered the resiliency of the Frise filter “under ... stresses of the filter being removed for washing and cleaning prior to re-insertion” as relevant to forming a cartridge like that described in Sylvan. The filter in the Sylvan cartridge is never removed from the cartridge for washing and cleaning, or re-inserted into the container.

Instead, the filter element in the Sylvan cartridge is permanently fixed in the container, is used once, and then discarded. Thus, resiliency of the filter element as it relates to the filter element's ability to withstand removal, cleaning and re-insertion would have been considered totally irrelevant to one of ordinary skill in the art when considering filter element modifications for the Sylvan cartridge. Also, as discussed above, one of skill in the art would have interpreted Sylvan as explaining that distortion of the filter element should generally be kept to a minimum while the cartridge is in operation (i.e., with pressurized water being introduced) so that the filter element remains out of contact with the container sidewalls and so that the filter is not pierced by the outlet needle 74 (see Fig. 4 of Sylvan). The fact that a filter element may be resilient to resume its shape after pressure or other distorting force is released is not relevant to the filter's function in a cartridge like that in Sylvan – once the pressure has been released, the cartridge and its filter have completed their function and are to be discarded. Whether a discarded cartridge has a filter element with an appropriate shape or configuration is not important. Instead, the question one of ordinary skill in the art would have considered is whether a resilient, conformable fluted filter element would contact the container sidewalls when wetted and under pressure. In my opinion, one of ordinary skill in the art would have believed that the resilient, compliant nature of a fluted filter element like that in Frise was not suitable for use in a Sylvan-type cartridge, mainly out of a concern that the filter element would not be able to maintain a suitable shape (i.e., is not self-supporting) and remain out of contact with the cartridge walls while pressurized water is introduced into the cartridge during a beverage formation process.

9. In addition to the above, one of ordinary skill in the art would not have had a reasonable expectation of success in incorporating the fluted filter of Frise in a Sylvan cartridge for reasons other than the undesirability of using a highly conformable filter in place of the conical filter disclosed in Sylvan. For example, Frise discloses that the filter is made rigid at its upper peripheral edge to aid in maintaining the filter's shape (see Frise page 3, lines 2-7 and lines 45-49). From my experience with beverage filter cartridges, I can attest to the fact that securing a fluted filter element with a rigid top edge as disclosed in Frise would be difficult, if not impossible, to accomplish. In contrast, a fluted filter must be compliant, not rigid, at its top edge to allow the filter to be suitably

sealed in place to the container. As a result, one of ordinary skill in the art would have viewed the filter element of Frise as incompatible with use in a Sylvan-type cartridge.

10. In short, it is my opinion that teachings regarding a filter element for use in a drip-type coffee brewer, like that in Frise, are not necessarily suitable for use in forming a beverage cartridge having a filter element and that is used to form beverages using injected, pressurized water. The functioning of the filter element in a drip-type brewer is quite different from that in the Sylvan cartridge. The Frise filter element is supported from the bottom and sides, and most of the beverage flow occurs through the bottom of the filter element due to gravity (see Frise in the sentence bridging pages 2 and 3). In contrast, the filter element in the Sylvan cartridge is subjected to pressure during beverage formation, and flow through the filter is the result of pressure driving the liquid through the filter in nearly all directions, not one direction due to gravity. This pressure places significantly more stress on the filter sidewall than that experienced during drip-type brewing, and requires the filter element to function in a different way. As a result, one of ordinary skill in the art would not necessarily have concluded that because a filter configuration (i.e., a fluted filter sidewalls) is suitable for use in drip-type brewing, that the same configuration would be suitable for use in pressurized cartridge-based beverage formation. This is especially true where the reason for the fluted sidewalls (conformance of the filter sidewalls to the filter support) is in direct contradiction to the teachings of Sylvan that the filter sidewall should avoid contact with the container sidewall.

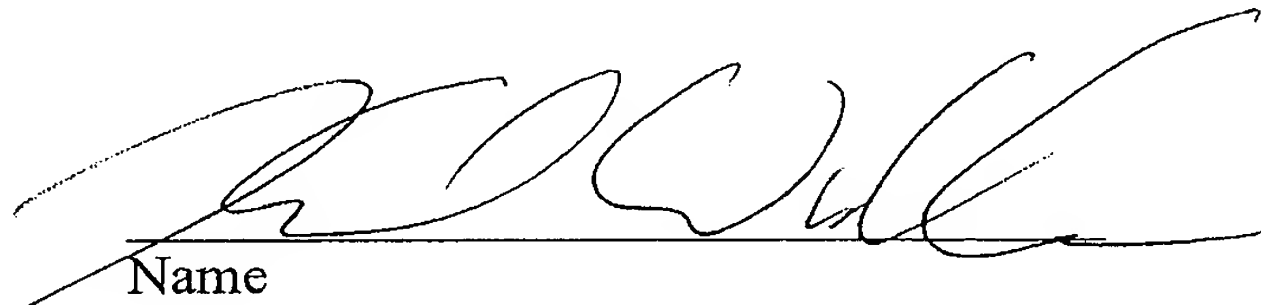
In fact, the use of a pleated, fluted or corrugated filter element as set forth in claims 1, 12 and 44 is not the predictable use of a prior art element according to its established function. Although fluted sidewall filters were known for gravity-driven drip-type brewing, pleated, fluted or corrugated filter elements were not used in pressurized cartridge-type beverage formation. Thus, one of ordinary skill in the art would not have been able to predict whether use of such a filter element in a beverage cartridge like Sylvan would have been successful since there was no established function of such filter elements for that application. To the contrary, the known function of a fluted filter element was that its sidewalls would conform to and contact the sidewalls of a supporting basket – in direct contrast to the desired function of a filter sidewall in a Sylvan



cartridge. It is my opinion that nothing in Frise would have suggested to one of ordinary skill in the art that the disclosed fluted filter would be suitable for use in any application other than one in which the filter is supported on the bottom and sides, much less suitable for use in a Sylvan beverage cartridge.

11. In view of the above, it is my opinion that the rejection of independent claims 1, 12 and 44 in the Office Action is not sustainable, in part because it is based on inaccurate or unfounded reasons for combining features of the prior art. That is, the Office Action has not articulated at least one reason why one of ordinary skill in the art would have used a fluted filter like that in Frise in a Sylvan beverage cartridge. To the contrary, there are several reasons described above why one of ordinary skill in the art would not have used such a filter in the Sylvan cartridge.

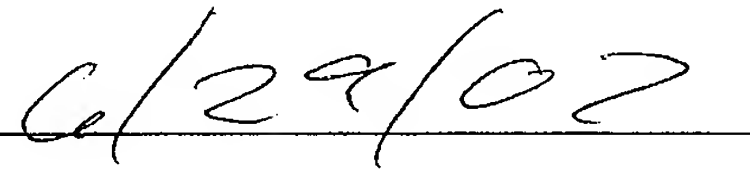
I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the above application and any patent or application related thereto.



\_\_\_\_\_

Name

Date



\_\_\_\_\_



Application No.: 10/658,925

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Docket No.: K0502.70037US00

**APPENDIX C**

No related proceedings are referenced in Section II above. As such, no copies of decisions in related proceedings are provided.